

**CALIFORNIA OCCUPATIONAL HEALTH AND SAFETY SURVEILLANCE  
OCCUPATIONAL HEALTH INDICATORS COMPONENT  
ANNUAL PERFORMANCE REPORT**

**July 1, 2010 - June 30, 2011**

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The overall aims of the Occupational Health Indicators Component are to:

- Collect and analyze surveillance data for 20 Occupational Health Indicators (OHIs) and an Employment Demographics Profile annually;
- Identify and respond to emerging occupational health issues;
- Collaborate with in-state partners to obtain input to guide our program, gain support to further program goals, and have impact on public health and regulatory policies;
- Collaborate with other states, the Council of State and Territorial Epidemiologists (CSTE), and NIOSH on nationwide activities to reduce work-related injury and illness;
- Disseminate our surveillance data, investigation findings, public health recommendations, and educational materials through a variety of means; and
- Regularly evaluate the accomplishments and impact of our occupational health program, and develop recommendations for improving effectiveness.

## **MAJOR ACCOMPLISHMENTS AND OUTPUTS**

### **Occupational Health Indicators**

- The Employment Demographics Profile and 20 OHIs are calculated annually for submission to NIOSH and publication on the CSTE website. A new OHIs “[topic page](#)” has been posted on the CDPH website with data from 2000-2005 (available as a full report) and links to additional materials and web pages. Data for 2006-2008 will soon be added, including the new low back disorder indicator beginning in 2007. [www.cdph.ca.gov/programs/ohsep/pages/indicators.aspx](http://www.cdph.ca.gov/programs/ohsep/pages/indicators.aspx)

### **Emerging Occupational Health Issues and Collaborations**

- **Food flavorings & lung disease** – Presented at the NIOSH-organized roundtable at the American Industrial Hygiene Conference, May 2011, Portland, OR. Testified in support of Cal/OSHA diacetyl standard, adopted September 2010. Collaborated with NIOSH on 2 publications from analysis of worker spirometry data: *Kim et al. Industry-wide surveillance of California flavor manufacturing workers: Cross-sectional results. Am J Ind Med 53:857-865, 2010*; and *Kreiss et al. Longitudinal lung function declines among California flavoring manufacturing workers. Am J Ind Med (in press)*.
- **Nanotechnology** – Branch-wide workgroup monitors developments in this area. Presented at NIOSH Nanomaterials and Worker Health conference, Denver, July 2010, and wrote a journal article: *Roisman et al. The role of state public health agencies in national efforts to track workplace hazards and the relevance of state experiences to nanomaterial worker surveillance. JOEM 53(6S):S38-41, June 2011*.
- **Aerosol transmissible diseases (ATDs) and use of respiratory protection in health care** – Co-produced with Cal/OSHA, UCLA, and UC Berkeley two 2-day trainings for health professionals on the Cal/OSHA ATD standard. Collaborated with NIOSH National Personal Protective Laboratory (NPPTL) on: 1) a second field project to assess respirator use in 15 acute care hospitals; and 2) development and evaluation of a “toolkit” to help hospitals improve their respirator programs. Gave poster presentations on project #2 at NIOSH NPPTL stakeholder conference, March 2011, Pittsburgh, PA, and

NIOSH NORA Meeting, July 2011, Cincinnati, OH; oral presentation at the June 2011 CSTE Annual Meeting, Pittsburgh, PA. Revised toolkit to be distributed statewide in fall 2011.

- **Biomonitoring for polybrominated biphenyl ethers (PBDEs)** – Collaborated with CDPH environmental health program and Association of Flight Attendants union on a biomonitoring study. Collected blood and urine samples from 25 flight attendants for analysis for PBDE metabolites.
- **Enumerating work-related injuries from multiple data sources** – Collaborated with CA Division of Workers' Compensation and US Bureau of Labor Statistics on a comprehensive evaluation of data sources for tracking of work-related carpal tunnel syndrome and amputations; made 2 presentations at June 2011 CSTE Annual Meeting. Related publication based on a presentation made at a NIOSH conference on use of workers' compensation data for surveillance: *Harrison RJ, Flattery J. State-based Occupational Injury and Disease Surveillance. In Utterback DF, Schnorr TM, eds. Use of Workers' Compensation Data for Occupational Injury and Illness Prevention – Proceedings from September 2009 Workshop. DHHS (NIOSH) Document No. 2010-152, Washington DC, 2010.*
- **Brazilian Blowout** – Collaborated with other agencies in an investigation and developed an educational material to alert workers and consumers about a formaldehyde-containing hair product, [Q&A: Brazilian Blowout and Other Hair Smoothing Salon Treatments](#).
- **Green chemistry / safer chemicals policies** – Collaborated with UC on a publication promoting substitutions to reduce use of toxic chemicals: *Lichterman et al. Preventing toxic exposures: Workplace lessons in safer alternatives. UC Berkeley Health Research for Action Perspectives Vol. 5, No. 1, July 2010. <http://healthresearchforaction.org/perspectives/preventing-toxic-exposures.pdf>*
- **Chemical emergencies** – Investigated a chlorine release that caused workers to be hospitalized; presented at June 2011 CSTE Annual Meeting; published findings in MMWR: CDC. *Chlorine gas exposure at a metal recycling facility – California, 2010. MMWR 60(28):951-954, July 22, 2011.*
- **Heat illness surveillance** – Analyzed 2005-2009 data on heat illness cases investigated by Cal/OSHA. Presented findings at June 2011 CSTE Annual Meeting.
- **Adult film industry** – Assisted Los Angeles Department of Public Health with an investigation of HIV and gonorrhea transmission among unprotected workers in this industry. Provided input to Cal/OSHA advisory meeting on development of new language for an occupational standard.
- **Revision of OSHA lead standards** – Provided recommendations to Cal/OSHA for revisions of lead standards for better worker protection from chronic, low-level lead exposure; informed stakeholders and participated in Cal/OSHA advisory meeting, February 23, 2011.
- **Work-related motor vehicle deaths** – Contributed to NIOSH publication for Workers Memorial Day issue of MMWR: CDC. *Occupational highway transportation deaths – United States, 2003-2008. MMWR 60(16):497-502. April 29, 2011.*
- **Construction ergonomics** – Collaborated with University of California researchers on 2 NIOSH-funded projects to reduce ergonomic injuries; produced new fact sheet, Drilling Overhead: Ways to Make a Tough Job Easier. [www.cdph.ca.gov/programs/hesis/Documents/DrillOverhead.pdf](http://www.cdph.ca.gov/programs/hesis/Documents/DrillOverhead.pdf)

#### Dissemination of Data, Findings, and Public Health Recommendations [www.cdph.ca.gov/programs/ohb](http://www.cdph.ca.gov/programs/ohb)

- Created and disseminated to over 3000 recipients two issues of our electronic program newsletter, *Occupational Health Watch: September 2010 - Preventing Worker Deaths in the Solar Industry; April 2011- Drilling Overhead: Ways to Make a Tough Job Easier.*
- Created articles about OHB and its projects for "Dying at Work in California," a publication produced by the nonprofit group WorkSafe and distributed statewide for Workers Memorial Day on April 28, 2011.
- Created internal procedures and data files to make OHB publications and materials available in the [NIOSH State-Based Occupational Health Surveillance Clearinghouse](#), with regular updates as we add documents to the OHB website.
- Staffed OHB literature tables at events including Federal OSHA Latino Worker Summit and Asian-American/Pacific Islander Summit, Worksafe Summit, Green Chemistry Through the Lens of Public Health Symposium, Pacific Construction Safety Expo, and Transit Workers Union Leadership Council meeting.

## **Program Evaluation**

- OHB staff responded to an internal survey to solicit their ideas on improving program effectiveness, participated in an all-staff offsite meeting to discuss findings, and formed 7 workgroups to move forward on priority actions identified for program improvements.

## **PLANS FOR THE NEXT YEAR**

In the next project period, we will continue our activities on multiple emerging occupational health issues and collaborations, as well as focus on disseminating the result of existing work by:

- Calculating the 2009 OHIs, posting additional data on our OHIs website, and collaborating with the CDPH Environmental Public Health Tracking Program to include more OHIs in their data portal;
- Expanding our electronic database of stakeholder contacts with particular focus on trade associations, unions, and high-risk employers;
- Disseminating 4-6 issues per year of our electronic newsletter *Occupational Health Watch*; and
- Posting additional topic-specific website pages.

**CALIFORNIA OCCUPATIONAL HEALTH AND SAFETY SURVEILLANCE  
INTERSTATE CHEMICAL THREATS WORKGROUP (SUPPLEMENT TO OHI COMPONENT)  
ANNUAL PERFORMANCE REPORT**

**July 1, 2010 - June 30, 2011**

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The overall aim of this project (as part of the Occupational Health Indicators Component of the CDPH-OHB program) is to develop a website for the Interstate Chemical Threats Workgroup (ICTW).

**MAJOR ACCOMPLISHMENTS AND OUTPUTS**

Formed in 2002, the ICTW is a national network of local, state, and federal health agencies dedicated to sharing knowledge, materials, and resources to define the role of state and local health agencies in the event of a significant chemical release. CDPH coordinates this nationwide network; the ICTW community now stands at 410 members.

Supplemental NIOSH funds were used to contract with Conceptual Arts Inc. (CAI) to produce a secure website for ICTW members that permits access to both current and archived materials (e.g., ICTW newsletters, presentations) and provides members with the opportunity to have real-time interactions about chemical incidents from a trusted secure location where resources can easily be uploaded and shared. In August 2011, ICTW Advisors and CDPH staff will beta test the site's functionality. The website will be launched in September 2011.

**PLANS FOR THE NEXT YEAR**

Once the website is launched, CDPH staff will maintain the website at no additional cost. Since January 2011, CAI staff has provided bi-monthly training sessions to the CDPH ICTW lead who will serve as the site administrator. The CDPH ICTW lead has developed proficiency in navigating the site, uploading various forms of new content, including video streaming, and adding and managing ICTW membership, comments and uploads. CAI will continue to provide the administrator with technical assistance during the launch phase and as problems present themselves.

**CALIFORNIA OCCUPATIONAL HEALTH AND SAFETY SURVEILLANCE  
WORK-RELATED INJURY FATALITIES  
ANNUAL PERFORMANCE REPORT**

**July 1, 2010 - June 30, 2011**

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The overall aims of the project are to identify, characterize, and prevent work-related injury fatalities in California by:

- Expanding case ascertainment using multiple data sources;
- Performing case-based field investigations and developing prevention strategies;
- Collaborating with local and state agencies;
- Disseminating results generated from project activities; and
- Evaluating surveillance and dissemination activities on an ongoing basis.

## **MAJOR ACCOMPLISHMENTS AND OUTPUTS**

### **Case Ascertainment**

The California Fatality Assessment and Control Evaluation (CA/FACE) program has identified 2,213 work-related injury fatalities (WRIF) in Los Angeles County from January 1, 1992 through June 30, 2011. Fatalities are coded with 5 codes each (NAICS, SIC, 1990 COC, 2000 COC, ICD-9). Securing more efficient access to files at the Coroner's office, and monitoring media reports and blogs on a daily basis have resulted in more timely case ascertainment. Data summaries based on multi-year analysis have been included in reports, publications and presentations.

### **Case-based Field Investigation, Prevention Strategies, and Dissemination**

CA/FACE program staff conducted thirteen worksite investigations (10CA005, 10CA006, 10CA007, 10CA008, 10CA009, 10CA010, 10CA011, 11CA001, 11CA002, 11CA003, 11CA004, 11CA005, 11CA006) including: truck mechanic crushed in trash truck, gardener falls out of tree, nursery owner falls off tractor, construction worker falls from a scissor lift, psychiatric technician killed by patient, groundsman thrown against wood chipper, avocado farm foreman pulled into wood chipper, plumber falls from roof, laborer falls from scaffold, gardener electrocuted while trimming a tree, roofing foreman falls through skylight, painter falls through skylight, and auto mechanic is burned with gasoline that ignited. Eight investigation reports were approved and published ([10CA001](#), [10CA003](#), [10CA005](#), [10CA006](#), [10CA007](#), [10CA008](#), 10CA009 (report will be posted soon), [10CA010](#)) resulting in 20 prevention recommendations. Case examples from investigation reports and fact sheets were used in vocational and technical school curriculums, municipal safety seminars, OSHA HAZWOPER trainings, union trainings, employer trainings, trade association newsletters, UCLA Worker Occupational Safety and Health Training and Education Program (WOSHTEP) trainings, the Ventanillas de Salud program at the Mexican and Ecuadorian consulates, and featured on national websites including *The Pump Handle* and *Fair Warning*.

Results of data analysis and recommendations for prevention were presented at eleven national public health conferences, meetings, and events (InterSolar Conference, Cal/OSHA District offices, California Department of Public Health Division of Environmental and Occupational Disease Control quarterly meeting, State Fund Insurance Safety Seminar, Annual NIOSH FACE Conference, APHA Annual Meeting, ASTM Safety Committee

meeting, Worker's Memorial Day events, ASSE meetings, Construction Safety Expo, and SEIU Nurse Alliance Conference.

Six new fact sheets were published (two English, four Spanish): [Cardboard Balers Crush Workers](#) (English) [¡Trabajadores aplastados por compactadora de carton](#) (Spanish), [Tree Trimmer Suffocated by Palm Branches](#) (English), [¡Cortador de arboles muere asfixiado por las ramas de una palmera!](#) (Spanish), [Solar Panel Installer Falls Off Roof](#) (English), [¡Instalador de paneles solares muere al caerse de un techo!](#) (Spanish), [Solar Panels: Lift Them Safely!](#) (English) [¡Panales solares: Súbalos de manera segura!](#) (Spanish). Twenty-five CA/FACE fact sheets have been translated into Spanish, and are posted on the CA/FACE website. A total of 10,665 fact sheets and brochures were distributed at conferences, meetings, health fairs, worksites, and consulates.

The CA/FACE website received an average of 3,927 hits per month from July to December 2010. The California Department of Public Health Web Trends (web tracking) software has not been available since January 2011. The Occupational Fatality Wikipedia page (originally authored by CA/FACE) received 1,139 hits per month. Two E-mail blasts went out to FACE and OHB stakeholders (total of 4,974 addresses) featuring our solar installation investigations and fact sheets. All CA/FACE publications were uploaded to the [NIOSH State-Based Occupational Health Surveillance Clearinghouse](#).

Staff participated in a two-day video production workshop at the Center for Digital Storytelling, created a video storyboard, and the video will be available for posting on YouTube in September 2011. Staff contributed to regular ASTM International Standards Worldwide committee meeting conference calls, working with the group to prevent fatal falls through skylights.

### **Collaborations with Local and State Agencies**

We continue to collaborate with a variety of local, state, and national agencies to prevent work-related injury fatalities, including: NIOSH, Division of Occupational Safety and Health, California Department of Transportation, UCLA Labor Occupational Safety and Health program, Mexican and Ecuadorian Consulates, UC Berkeley Labor Occupational Health program, Center for Occupational and Environmental Health, Center for Digital Storytelling, State Building Trades Council, unions, career and vocational schools, community colleges, trade associations, foreign consulates, and labor centers.

### **Evaluation of Surveillance Activities**

Quality control of our case ascertainment and data coding is ongoing. Publication and report evaluation questionnaires are available online and printed at the bottom of each fact sheet, and included in e-mail blasts of our published materials. During the past year, 14 fact sheets and 20 investigation reports were evaluated. An Employer Action Evaluation Form is used to get feedback from the employers in the incidents we have investigated. Seven worksites were contacted and six phone interviews took place.

### **PLANS FOR THE NEXT YEAR**

Our CA/FACE program will continue to accomplish its specific aims with the following activities:

- Publish four new bilingual fact sheets (two English and two Spanish);
- Publish a year-end summary data report on the CA/FACE website;
- Produce and post on YouTube two 3-minute safety videos highlighting our investigation findings and prevention recommendations;
- Publish Los Angeles fatality data in a peer-reviewed journal; and
- Post a fatality map on the CA/FACE website and update data annually.



**CALIFORNIA OCCUPATIONAL HEALTH AND SAFETY SURVEILLANCE  
WORK-RELATED ASTHMA (WRA) SURVEILLANCE AND PREVENTION  
ANNUAL PERFORMANCE REPORT**

**July 1, 2010 - June 30, 2011**

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The overall aims of the project are to identify, characterize, and prevent work-related asthma in California by:

- Continue case ascertainment using multiple data sources;
- Performing case-based field investigations and developing prevention strategies;
- Collaborating with local and state agencies;
- Disseminating results generated from project activities; and
- Evaluating surveillance activities on an ongoing basis.

## **MAJOR ACCOMPLISHMENTS AND OUTPUTS**

### **Case Ascertainment**

The Work-Related Asthma Prevention Program (WRAPP) has confirmed over 4,700 WRA cases to present. Historically, cases were only identified through Doctors' First Reports of Occupational Injury or Illness, a statewide reporting mechanism. However, beginning in 2006, Workers' Compensation Data, Emergency Department Data, and Patient Discharge Data were added to the system. All four data sources are now routinely used to identify potential cases; for the year 2009, the combined sources identified 972 potential WRA cases. Follow-up was attempted for all identified cases through telephone interview, or medical record retrieval if an interview was not possible. Outputs include data summaries based on multi-year analysis, including calculation of rates. Data analyses were conducted this year to examine and characterize cases associated with swimming pool chemicals, wood dust exposures, and cleaning chemicals. An additional analysis was conducted to compare confirmed cases that could be distinguished as new onset or work aggravated asthma with confirmed cases that could not be further classified. Estimates were also generated for the number of adults with WRA by county in California. Data summaries have been used in a variety of contexts, including internal reports, publications, and websites, as well as in presentations and publications of other organizations.

### **Case-based Field Investigations, Prevention Strategies, and Dissemination**

WRAPP staff continued to investigate and promote asthma-safe cleaning and disinfecting methods in hospitals, schools, and childcare settings. WRAPP collaborated with a major HMO to learn about safer alternatives for glutaraldehyde disinfection of scopes and probes, visiting four different hospitals with various technologies in place. Staff also conducted a worksite investigation of a youth development corps work camp office worker who suffered asthma and anaphylaxis after exposure to 'green' cleaning products. WRAPP completed the pilot of its Cleaning for Asthma-Safe Schools (CLASS) program, assisting 4 school districts to switch to green cleaning products and methods. CLASS has now generated draft guidelines for schools statewide to adopt asthma-safe cleaning policies and methods and has recruited 6 school districts to review them, pilot test them, and provide additional feedback. WRAPP staff also participated in a national workgroup that released guidelines for the safe use of disinfectants in schools, and is now developing guidelines for childcare. Staff participated on the Advisory Committee for the revision of the EcoLogo CCD-146 Hard Surface Cleaners standard, which now contains a prohibition of asthmagens in large part due to WRAPP input.

In addition to outputs listed above, results of data analysis and strategies for prevention were presented in a variety of contexts, including presentations at meetings and publications:

- Distribution of factsheet: [Cleaning Products and Work-related Asthma](#), November 2010

- Presentation of WRA and Wood Dust data at International Symposium on Wood Dust/American Industrial Hygiene Association Conference, Portland OR, May 2011
- Webinar on WRA associated with cleaning in childcare settings, October 2010
- Collaborated on presentation: “Quantitative Assessment of Inhalation Exposures Generated from Floor Mopping Practices using Full-scale Chamber – A Pilot Study” presented at Indoor Air, Austin TX, June 2011

### **Collaborations with Local and State Agencies**

We continue to work collaboratively with a wide variety of state, local, and national agencies to foster successful approaches to asthma prevention. WRAPP staff are involved in multiple coalitions, including a statewide workgroup focused on asthma management and prevention in schools and a national workgroup on disinfectants in schools and childcare. Examples of organizations staff have collaborated with over the past year include: School districts, California EPA, University of California, Regional Asthma Management and Prevention Initiative (RAMP), the School Environmental Health and Asthma Collaborative (SEHAC), American Lung Association, CA Thoracic Society, the Toxics Use Reduction Institute, Green Schools Initiative, Environmental Working Group, Green Purchasing Institute, California Teachers Association, SEIU, US EPA, and CDC. Staff also collaborated to promote WRA prevention by participating on a steering committee to organize a statewide asthma research summit; by collaborating with the City and County of San Francisco Departments of Health and the Environment to promote safer cleaning product use in schools and bleach use reduction in childcare settings; by participating in bilingual meetings with promotoras and domestic cleaners on safer cleaning products and methods; and by inclusion of CLASS project information in newsletters of the California School Nurses Association and the Environmental Working Group.

### **Evaluation of Surveillance Activities**

We continue to conduct quality assurance and quality control in our project activities. We conduct ongoing evaluation of our case ascertainment activities through capture-recapture analysis, and conduct targeted follow-up assessments to determine if prevention recommendations have been effective.

### **PLANS FOR THE NEXT YEAR**

Our Work-related Asthma Prevention Program will continue to accomplish its specific aims with the following activities:

- Perform capture-recapture analysis of combined 2006 -2008 years of data, conduct analysis of BRFSS call back survey and National Asthma Survey data, and analyze and publish 15 years of surveillance data;
- Finalize and distribute guidelines for asthma-safe cleaning in schools;
- Finish evaluation of alternative technologies for scope and probe disinfection in the health care industry and distribute recommendations for alternatives and exposure prevention;
- Investigate swimming pool chemical exposures and disseminate guidelines for safer use;
- Investigate and develop prevention recommendations related to exposures of interest identified through analysis of surveillance data;
- Expand and strengthen collaborations with a wide variety of environmental and community advocacy groups to address and prevent WRA; and
- Disseminate findings and prevention recommendations through a variety of methods.



**CALIFORNIA OCCUPATIONAL HEALTH AND SAFETY SURVEILLANCE  
PESTICIDE-RELATED ILLNESS  
ANNUAL PERFORMANCE REPORT**

**July 1, 2010 - June 30, 2011**

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The overall aims of the project are to identify, characterize, and prevent occupational pesticide illness in California by:

- Expanding case ascertainment using multiple data sources
- Performing case-based field investigations and developing prevention strategies
- Collaborating with local and state agencies
- Disseminating results generated from project activities; and
- Evaluating surveillance activities on an ongoing basis.

## **MAJOR ACCOMPLISHMENTS AND OUTPUTS**

### **Case Ascertainment**

The Occupational Pesticide Illness Prevention Program identified 5,088 case reports of occupational pesticide illness from January 1, 1998 through April 29, 2011. We began surveillance of disinfectant-related pesticide illnesses beginning with 2007 cases. Due to the high volume of disinfectant illnesses, one out of every four reports was included from 2007 through 2009. Starting in 2010, we expanded our capability to track disinfectant-related illnesses and are now including every report in our surveillance system. We continued to identify incidents through Pesticide Episode Notification Records, and individual cases through Doctors' First Reports of Occupational Injury or Illness, Pesticide Illness Reports, and reports from the California Poison Control System. We have added and evaluated Workers' Compensation Data, Emergency Department Data, and Patient Discharge Data as sources for identifying additional pesticide illness cases. Medical records were requested for all reported cases. For selected incidents, we utilize investigation reports from respective California Agricultural Commissioners as additional data sources. Data collected from this multi-year surveillance effort includes calculations of rates, industry, occupation, type of pesticide involved, how exposure occurred, and type of health effect. We have utilized data summaries in various ways, including reports, publications, the CDPH website, and presentations for wide distribution. In addition to documenting the significant scope of this important public health problem, we have used the data to characterize the conditions under which pesticide illness occurs so that appropriate prevention strategies can be developed and implemented.

### **Case-based Field Investigation, Prevention Strategies, and Dissemination**

- Based on a site investigation of pesticide illnesses due to pyrethrin and pyrethroid use in an office building in Orange County, we are developing two alerts (one for [employees](#), one for managers) to promote the use of Integrated Pest Management in the office work environment. We are doing this in collaboration with the California Department of Pesticide Regulation, which represents a new collaborative effort for our program. We plan to jointly disseminate both alerts.
- Based on a site investigation of pesticide illnesses due to chloropicrin and sulfuryl fluoride exposure in a bank building in Monterey County, we sent a report summarizing our findings to the bank staff and to bank management. We are also developing an alert that will be used to disseminate information about safe fumigation processes.

- We conducted limited investigations into illnesses that occurred secondary to exposure to pool disinfectants and we are planning to develop an alert on this topic that will educate pool employees about safe disinfectant use.
- We have been working on a project with Planned Parenthood Mar Monte designed to improve clinician understanding of pesticide related illnesses and to improve reporting of pesticide illnesses.
- We have been collaborating with the Department of Pesticide Regulation on an investigation into phosphine exposure among 10 employees that resulted in at least one case of pulmonary edema; a publication detailing this investigation is in process.
- We presented “Good digging: Mining worker’s compensation data for pesticide illness cases” at the Council of State and Territorial Epidemiologists Conference, June 2011.
- We were co-authors on the following publication: Lee SJ, Mulay P, Diebolt-Brown B, Lackovic M, Mehler L, Beckman J, Waltz J, Prado JB, Mitchell Y, Higgins SA, Schwartz A, Calvert GM. *Acute illnesses associated with exposure to fipronil — surveillance data from 11 States in the United States, 2001–2007. Clin Toxicol 2010; 48:737-44.*
- Information generated from surveillance and investigation activities was presented to a variety of audiences, including health care practitioners, local health officers, and national public health professionals.

## **Collaborations with Local and State Agencies**

We continue to collaborate with partners in our own department, federal agencies (NIOSH, US Environmental Protection Agency), state agencies (California Department of Pesticide Regulation (DPR) Worker Health and Safety Branch, the California EPA Office of Environmental Health Hazard Assessment), local agencies, university-based programs and community-based organizations who are interested in the prevention of work-related pesticide illness (Planned Parenthood, California Rural Legal Assistance, Pesticide Action Network, Migrant Clinicians’ Network, Toxic Use Reduction Institute – National Disinfectants Work Group). Most significantly, in the past year we have dramatically improved and expanded our collaboration with DPR. DPR and CDPH have signed a Memorandum of Understanding that will permit extensive data sharing. We are also in the process of finalizing our two jointly developed and jointly disseminated fact sheets, and we are working on a number of joint investigations. These efforts represent a significant step forward in terms of enabling us to maximize the efficiency of our surveillance program and to ensure widespread dissemination of our prevention recommendations.

## **Evaluation of Surveillance Activities**

We continue to conduct quality assurance and quality control in all our project activities. We conduct ongoing evaluation of our case ascertainment activities and conduct targeted follow-up assessments to determine if prevention recommendations have been effective. We recently started using a fine-grained record integration and linkage tool (FRIL 3.2, Atlanta, 2008, [www.fril.sourceforge.net](http://www.fril.sourceforge.net)) to aid our assessment of overlap of cases between datasets.

## **PLANS FOR THE NEXT YEAR**

Our Occupational Pesticide Illness Prevention Program will continue to accomplish its specific aims with the following activities:

- Further develop our ability to abstract cases from WCIS by conducting additional interviews of workers identified through WCIS;
- Begin to share surveillance data with DPR via our newly signed MOU and use this information to evaluate our surveillance activities;
- Write a manuscript for a peer-reviewed publication on 5 years of surveillance data;
- Work with Cal/EPA to receive new mandatory reported cholinesterase results and incorporate these data into our surveillance efforts;
- Complete two fact sheets on indoor pesticide exposure being jointly developed with DPR and jointly

disseminate these fact sheets;

- Complete and disseminate a fact sheet on safe fumigation practices.
- Conduct site visits and research to develop recommendations to reduce pesticide exposure to workers due to swimming pool disinfectant use;
- Improve and expand our program website to include more information about our program as well as resources for the prevention of pesticide-related illnesses (e.g., indoor pesticide exposures, disinfectants, bedbugs); and
- Publish the results of an investigation of phosphine exposure, being prepared jointly with DPR.

**CALIFORNIA OCCUPATIONAL HEALTH AND SAFETY SURVEILLANCE  
CARPAL TUNNEL SYNDROME  
ANNUAL PERFORMANCE REPORT**

**July 1, 2010 - June 30, 2011**

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The overall aims of the project are to identify, characterize, and prevent work-related carpal tunnel syndrome (CTS) in California by:

- Reestablishing and enhancing our previous surveillance system for CTS;
- Utilizing surveillance data to perform selected case follow-up and workplace interventions with prevention recommendations for employers and employees;
- Collaborating with local and state agencies and a wide range of other partners to track CTS in the workplace and implement prevention strategies;
- Disseminating using a variety of means our surveillance data, findings of case investigations, and intervention results; and
- Evaluating the results of surveillance, field investigations, and information dissemination.

## **MAJOR ACCOMPLISHMENTS AND OUTPUTS**

### **Case Ascertainment**

We have used the Workers' Compensation Information System (WCIS) as our primary data set for case ascertainment. The WCIS is an electronic system for workers' compensation claims information that is based on national data standards established in 2000. Based on our *a priori* knowledge of the diagnosis and treatment of CTS, we extracted cases from the WCIS using a broad set of criteria including nature of injury, ICD-9 and procedure codes, and injury description (carpal tunnel or variations, or numbness/tingling). We then developed a final case classification scheme based on additional "acceptable codes" for Nature of Injury, Cause of Injury, Part of Body, and Injury Description. WCIS claims from our original extract were classified as Probable, Possible, or Excluded based on these acceptable codes. There were a total of 67,548 cases of probable or possible work-related CTS during the period 2006-2011.

### **Case Confirmation**

In order to confirm the cases obtained through the WCIS system, we have obtained medical records for 51 cases of CTS (Probable, Possible, and Excluded). Two physicians (Robert Harrison and Rachel Roisman) are independently reviewing the medical records and classifying the cases according to a case definition for CTS (definite or probable based on presence of median nerve symptoms, and objective evidence of CTS including physical examination findings or nerve conduction tests diagnostic of CTS) previously established for CTS surveillance.

### **Selection of Occupations for Interventions**

California is the only state with a regulatory standard requiring employers to implement an ergonomics program when a repetitive motion injury (RMI) has occurred to more than one employee under the following four conditions: (1) the RMIs are predominantly caused (i.e., 50% or more) by a repetitive job, process, or operation; (2) the two or more employees incurring the RMIs were performing a job, process, or operation of identical work activity; (3) the RMIs are musculoskeletal injuries that a licensed physician has objectively identified and diagnosed; and (4) the RMI cases have been diagnosed within the previous 12 months. For our analysis, we assumed that CTS cases from the WCIS were predominantly caused by work; occupations with

the identical job titles were performing identical work activities; there was objective evidence of CTS diagnosis in the medical record; and that large companies should implement an ergonomic program based on knowledge of CTS cases from multiple establishments.

For the years 2006-2011, we determined the ten leading occupations with CTS cases. We then reviewed this data with our ergonomic consultant (David Rempel, MD) to determine whether: (1) there is evidence in the medical or scientific literature of ergonomic interventions for these occupations that can reduce the risk of MSDs; (2) information is already widely available to employers and employees about how to reduce the risk of MSDs; and (3) targeted ergonomic interventions are feasible and have an opportunity for collaboration.

Based on the above criteria, we have selected cake decorators, nurses, legal assistants, and dental hygienists for ergonomic intervention.

### **Selection of Employers for Ergonomic Program Evaluation**

For each occupational group of interest, we identified all California employers with two or more claims of CTS among employees with the same job title within any 12-month period between 2006 and 2011. In order to prioritize employers for worksite evaluations, we used a cutoff of ten repeat CTS claims for cake decorators, nurses and legal employees. Dental hygienists are employed by numerous small dental practices, and it was not possible to establish a cutoff size for these employers. We have chosen one large retail club company with multiple establishments as the target of our initial ergonomic intervention.

### **Collaboration**

In Year 1, we collaborated extensively with the UC Berkeley Ergonomic Program (David Rempel, MD, University of California Ergonomics Program) and the California Division of Workers' Compensation in developing our methods, analysis, and interpretation of CTS surveillance data.

### **Dissemination**

Our project activities were recently described in the Worksafe 2011 Workers Memorial Day publication, *"Dying at Work in California: the Hidden Stories Behind the Numbers."*

### **PLANS FOR THE NEXT YEAR**

In Year 2, we plan several data analysis and worksite evaluation activities:

- Calculate rates of CTS among selected occupational classes in the WCIS data set;
- Initiate targeted field investigations in cake decorating facilities, and develop prevention recommendations for best practices to reduce CTS;
- Develop and disseminate fact sheets for employers and employees on the ergonomic risks and prevention solutions for cake decorators; and
- Present the findings from our analysis of WCIS CTS data to Cal/OSHA leadership and safety professionals, and public health audiences (CSTE, APHA, WestON).